

## **Abstract**

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In the invention, a rate distortion optimization (RDO) based rate control scheme is comprised of following two steps: first, does bit allocation for every frame in a GOP, and based on the allocated bits, a predicted quantization parameter is used to do the first rate distortion optimization mode selection for every macroblock in the current frame; second, the information of the current macroblock collected from the first rate distortion mode selection is used to calculate a final quantization parameter for rate control, and if the final quantization parameter is different from the predicted one, a second rate distortion mode selection will be executed again. A rate distortion optimization based rate control implementation includes following modules: a video coding encoder module(for example, H.264/JVT processing module), rate distortion optimization based macroblock mode selection and adaptive quantization module, virtual buffer, and global complexity estimation module. As RDO and rate control are considered together in the invention, the RDO based rate control scheme can achieve better coding performance while with accurate target bitrate control.